Reviewer's report

Title: Natural killer cell function is depressed in Gulf War Illness.

Version: 1 Date: 11 December 2008

Reviewer: Aristo Vojdani

Reviewer's report:

1. Is the question posed by the authors well defined? Yes.
2. Are the methods appropriate and well described? Yes.
3. Are the data sound? Yes.
4. Does the manuscript adhere to the relevant standards for reporting and data deposition? Yes.
5. Are the discussion and conclusions well balanced and adequately supported by the data? Yes.
6. Are limitations of the work clearly stated? No. The authors need to acknowledge that there is a weakness in their study in that they only have 9 subjects with GWI (2 African-American, 6 Hispanic, 1 white), and 11 controls (4 African-American, 4 Hispanic, and 3 white). With this type of demographic, it is very difficult to conclusively determine a trend regarding immune functions, including lymphocyte subpopulation, in particular CD4/CD8 ratio. Therefore, I would recommend that in addition to mean + SD individual data also be presented in the form of a scatter plot.
7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished? Yes.
8. Do the title and abstract accurately convey what has been found? No. I recommend that the title be changed to indicate impaired immune function and not just NK cell function depression.
9. Is the writing acceptable? The writing is good.

Please make your review as constructive and detailed as possible in your comments so that authors have the opportunity to overcome any serious deficiencies that you find and please also divide your comments into the following categories:

- Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)
- Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct) Because of the important observation made by this study regarding the exercise challenge augmentation of impaired immune function in GWI, despite the low number of cases and controls I
recommend that this manuscript be accepted for publication with minor essential revisions. The authors should, however, state the limitations of their study and make a statement encouraging further research with a much larger number of subjects.

- Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

I have detected no plagiarism and am not aware of any duplication.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.